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Vermont

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KNOWN AS THE Green Mountain State, Vermont underwent widespread reforestation following farm abandonment in the mid-1800s. In addition to the existence of several land trusts, the Green Mountain Club has protected more than 55 mi. (88 km.) along a hikers' Long Trail. There is a strong state environmental movement, with local groups and chapters of national organizations. Vermont hosts one of the nation's leading environmental law and policy programs at the Vermont Law School. The state government has invested in energy efficiency and joined regional efforts to reduce greenhouse gas (GHG) emissions. Climate change and global warming concern Vermonters because of the economic revenue the state gains from nature tourism, particularly during the autumn foliage and winter skiing seasons.

In spite of some local variation, the northeastern United States has experienced a temperature increase of 1.8 degrees between 1899 and 2000. The average length of the annual growing season has been extended by eight days, and bloom dates have changed. Scientists have documented quicker thawing of lakes, known as ice-in and ice-out dates, as well as earlier runoff from mountains.

Data have suggested that maple production from the sugar maple (*Acer saccarum*), the Vermont state tree, may be vulnerable to climate shifts. Under several climate change models, this species may entirely shift out of the United States. Studies suggest that seven of 80 eastern tree species may decline by as much as 90 percent in the next century if temperature changes continue at current rates.

In terms of GHG emissions, Vermont's energy portfolio is one of the greenest in the nation. Vermont Yankee Nuclear Power Plant, online since 1973, provides approximately 35 percent of the state's energy requirements. Its license is scheduled to expire in 2012, but petitions are in place for renewal and expansion of production. There is some local opposition to both proposals.

Energy from Hydro-Quebec, an extensive series of dams across Quebec Province in Canada, provides a third of Vermont's energy needs. Although hydropower is a renewable energy source, the creation of the project's dams has been controversial, in that it caused flooding of indigenous lands. Research on dam building also suggests that methane may be released from the decomposition of flooded forests. Releases are expected to be considerably higher in tropical ecosystems, but more research is needed to determine the exact levels. Fossil fuels are also used in the creation and maintenance of dam structures.

Nearly one-third of Vermont's energy is created from a mixture of in-state renewable energy resources. The Cow Power program uses manure to create energy and provide income to dairy farmers. Efficiency Vermont is the nation's first statewide provider of energy efficiency services. The program is operated by an independent, nonprofit organization under contract to the Vermont Public Service Board. It provides technical advice, financial assistance, and design guidance to make homes, schools, and businesses more energy efficient. The program is funded by a charge on users' electric bills.

In 2006, Governor Jim Douglas announced a public-private partnership that will invest $20 million in energy efficiency. He also extended state energy efficiency programs. In addition to $8 million in weatherization grants available to low-income Vermonters each year, Douglas' program also created private capital to provide $20 million no- or low-interest loans to assist homeowners and small businesses to make buildings more fuel efficient.

Vermont has joined regional climate change mitigation initiatives. The state joined seven others in 2004 in a legal suit against several energy companies to require them to reduce carbon dioxide emissions and control GHG outputs. Vermont is part of the Regional Greenhouse Gas Initiative's cap-and-trade program for power plants, aimed at reducing carbon

emissions. Six New England states and five eastern Canadian provinces adopted a joint Climate Change Action Plan to reduce GHG emissions.

SEE ALSO: Energy Efficiency; Energy, Renewable; Greenhouse Gases; Vermont Law School.

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